

# THE POWER OF PARKS TO CREATE HEALTHIER COMMUNITIES

Miami-Dade County Parks, Recreation and Open Spaces Department's



An example of ways research can be used to justify the importance of park and recreation facilities, programs, and services in promoting community health





# Childhood Obesity Epidemic

- There is a health crisis in Miami Dade County that is blind to age, race or ethnicity.
- Today's society promotes increased food intake, foods that are not healthy and physical inactivity.
- Nearly one in three children are overweight or obese and are at risk to develop significant health issues like diabetes and heart disease
- Children from economically disadvantaged households are more likely to be overweight or obese.
- African American and Hispanic children are developing type 2 diabetes at much higher rates than their Caucasian peers.



# NHANES 2009-2010 Shows

## About One in Every Three Children in the US is Overweight or Obese

**Table 2.** Prevalence for 2009-2010 of High Body Mass Index (BMI) in US Children and Adolescents From 2 Through 19 Years of Age<sup>a</sup>

By BMI Percentile	Children and Adolescents by Age Group, % (95% CI) <sup>b</sup>				
	2-19 y	2-5 y	6-19 y	6-11 y	12-19 y
Both Sexes					
All racial/ethnic groups <sup>c</sup>					
≥85th	31.8 (29.8-33.7)	26.7 (22.6-31.2)	33.2 (31.2-35.3)	32.6 (30.1-35.2)	33.6 (30.9-36.5)
≥95th	16.9 (15.4-18.4)	12.1 (9.9-14.8)	18.2 (16.5-20.1)	18.0 (16.3-19.8)	18.4 (15.8-21.3)
≥97th	12.3 (11.1-13.5)	9.7 (7.7-12.2)	13.0 (11.7-14.4)	13.0 (11.2-15.0)	13.0 (10.9-15.4)
Hispanic <sup>d</sup>					
≥85th	39.1 (36.9-41.4)	33.1 (29.7-36.6)	41.2 (38.0-44.4)	39.7 (35.2-44.3)	42.4 (37.2-47.8)
≥95th	21.2 (19.5-23.0)	16.2 (13.1-20.0)	22.9 (21.0-24.9)	22.5 (20.2-25.0)	23.2 (19.3-27.7)
≥97th	15.6 (14.3-16.9)	13.0 (10.1-16.5)	16.4 (15.0-18.0)	16.4 (13.6-19.8)	16.4 (13.4-20.0)
Mexican American					
≥85th	39.4 (35.8-43.1)	33.3 (28.2-38.9)	41.4 (36.4-46.6)	39.0 (33.3-45.1)	43.4 (36.6-50.4)
≥95th	21.2 (18.8-23.8)	15.5 (11.9-20.0)	23.1 (20.1-26.3)	22.1 (18.8-25.8)	23.9 (18.2-30.6)
≥97th	15.5 (13.6-17.7)	11.9 (8.4-16.6)	16.7 (14.7-19.0)	17.5 (13.9-21.7)	16.1 (12.2-20.8)
Non-Hispanic white					
≥85th	27.9 (25.1-31.0)	23.8 (17.9-31.0)	29.0 (25.8-32.4)	27.6 (23.6-31.9)	30.0 (25.4-34.9)
≥95th	14.0 (11.7-16.7)	9.2 (6.0-14.0)	15.2 (12.5-18.4)	13.9 (11.1-17.3)	16.1 (12.6-20.5)
≥97th	9.8 (8.0-12.0)	7.5 (4.6-12.0)	10.4 (8.3-12.9)	9.1 (6.7-12.3)	11.3 (8.4-15.0)
Non-Hispanic black					
≥85th	39.1 (35.5-42.8)	28.9 (21.8-37.3)	41.8 (38.3-45.4)	42.7 (36.2-49.4)	41.2 (35.0-47.8)
≥95th	24.3 (20.5-28.6)	18.9 (12.5-27.5)	25.7 (21.7-30.2)	28.6 (22.0-36.2)	23.7 (19.2-29.0)
≥97th	18.6 (15.4-22.2)	14.4 (9.1-22.2)	19.7 (16.5-23.4)	22.2 (16.9-28.6)	18.0 (14.1-22.6)



# National Obesity Trends Among Preschool-Age Children: Prevalence has more than Doubled in Four Decades

## Prevalence of Obesity Among U.S. Preschool-Age Children

	Survey Periods			
	NHANES I 1971–1974	NHANES II 1976–1980	NHANES III 1988–1994	NHANES 2009- 2010
<b>Ages 2 through 5</b>	<b>5%</b>	<b>5%</b>	<b>7.2%</b>	<b>12.1%</b>

Ogden, CL et al., JAMA 2012  
Ogden CL et al., JAMA 2006

# Miami-Dade County Parks, Recreation and Open Spaces Department

## Applying the Sterling Criteria to address the Childhood Obesity Epidemic

- Leadership
- Strategic Planning
- Customer Focus
- Measurement, Analysis and Knowledge Management
- Workforce Focus
- Operation Focus





# Solution = Fit2Play Program







## Health & Wellness Evidenced-Based Recreation Activities

- Increase the physical activity of children through quality recreation activities
- Improve the health and wellness of children through fun, interactive learning
- Improve school performance through quality homework assistance
- Create opportunities for children to make friends



**FIT2PLAY** Miami-Dade County Parks, Recreation and Open Spaces

Fit-to-Play—A National Out-of-School and Summer Program Model



**Outcome Oriented Structured Programs**  
**Physical and Nutritional Evidenced Based Recreation Activities**  
**Tests—Measures—Results**  
**Program Components**  
SPARK (Physical Activities)  
EmpowerMe 4Life Nutrition  
Homework Help  
Life Sports and Recreational Games  
Recreation Enrichment  
**Program Goals**  
Increase Physical Activity  
Improve Health and Wellness  
Teach Nutrition—Healthy Food Choices  
Improve School Performance  
Have Fun—Make Friends  
**Health and Nutrition Initiatives—2013**  
Prescriptions for Prevention  
Healthy Cooking  
Parent Engagement  
Nature Programming

# Fit2Play - Physical Fitness Component

- Evidence Based (NIH funded, 45 publications of effectiveness)
- 400 Page binder of activities
- 45 minutes of Physical Activity minimum 4 times a week
- Leaders receive ongoing in-service training, evaluation and instructor coaching
- Equipment available for activities
- Follow up support available





# Fit2Play - Nutrition Curriculum



- EmpowerME4Life is an 8-session healthy living course to equip kids ages 8-12 with new attitudes, skills and knowledge about eating better
- Grounded in the American Heart Association's scientific recommendations in promoting heart-healthy lifestyles
- Based on the Alliance's five steps kids can take to live healthier:
  1. Get physically active for 60 minutes each day
  2. Drink primarily water, 1 percent or fat free milk, and 100 percent juice with no added sugars
  3. Eat fruits and vegetables with EVERY meal
  4. Limit screen time 1-2 hours a day
  5. Get at least 9 hours of sleep every night



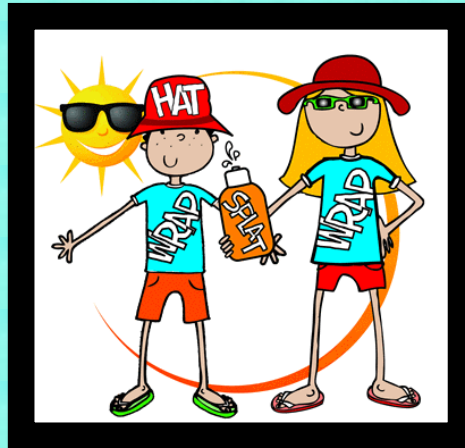


# Fit2Play – Lifetime Sports

Purpose: Expose lifetime sports (golf, tennis and fishing) to underserved children who might not otherwise have the opportunity to do so.



# Fit2Play – Safety & Wellness Education





# Fit2Play – Green Pledge Activities

- Striving to develop eco-conscious children that care for the environment they live in.
- Teach campers how a healthy planet is essential for a healthy life
- By taking the Green Pledge, kids learn the basics of recycling and conservation, and other ecofriendly activities



**REUSE**   
**REDUCE**  
**RECYCLE**

# Our Prevention Partners



Embrace better health.™



UNIVERSITY OF MIAMI  
MILLER SCHOOL  
of MEDICINE





## Evidence-Based Research



**Year One Results (2010-2011)** – Under review at the *American Journal of Preventive Medicine*

**Year Two (2011-2012) Results** – (1) Accepted with revisions at the *American Journal of Health Promotion*; (2) Under review at *Disability and Health* (children with disabilities only)

**Year Three (2012-13) Results** – Currently Analyzing and abstract submitted to the 2014 American Health Association Cardiovascular Epidemiology Meeting

# Study - Focused on Physical Fitness & Nutrition Components

**Longitudinal cohort study** to determine the effect of Fit2Play on preventing overweight and obesity among 5-to-16 (up to 24 years old in disabled sample) year olds in 23 Miami-Dade County parks.

- UM faculty and staff trained MDC Parks field staff in anthropometric and clinical data collection techniques
- Web-based data collection program; Data automatically uploaded to UM server
- UM faculty analyze data





# Data Collection

Used standardized, quantifiable and measurable testing to assess health, fitness, wellness and academic performance

## Primary Outcome Measures

- Anthropometric Measures (BMI, WC)
- Clinical Measures (BP)
- Physical Fitness
- Nutrition Knowledge

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# Tests – Measures - RESULTS

# Results: Baseline Descriptive Statistics

Mean Age 9.3 years, (range 5-15) N=262	
Gender	N (%)
Boys	134 (51)
Girls	128 (49)
Ethnicity	
Hispanic	153 (59)
Black	92 (35)
White	14 (5)
Other	3 (1)

2010-11

Mean Age 8.9 years, (range 5-16) N=349	
Gender	N (%)
Boys	173 (50)
Girls	176 (50)
Ethnicity	
Hispanic	139 (40)
Black	183 (55)
White	14 (4)
Other	3 (1)

2011-12



# Results: Anthropometric, 2010-2011

## Normal Weight

## Overweight/Obese

	Baseline/ Pretest (Fall 2010)	Posttest (Spring 2011)	P value	Baseline/ Pretest (Fall 2011)	Posttest (Spring 2012)	P value
	Mean	Mean		Mean	Mean	
BMI z score	-0.2	0.0	0.01	1.7	1.7	0.83
Waist Circumference (cm)	58.7	59.0	0.50	75.6	76.3	0.09
Sum of 4 Skinfold Thicknesses (mm)	34.8	36.3	0.16	73.7	72.7	0.37

# Results: Anthropometric, 2011-2012

## Normal Weight

## Overweight/Obese

	Baseline/ Pretest (Fall 2011)	Posttest (Spring 2012)	P value	Baseline/ Pretest (Fall 2011)	Posttest (Spring 2012)	P value
	Mean	Mean		Mean	Mean	
BMI z score	0.2	0.3	0.18	2.0	1.8	<0.01
Subscapular skinfold (mm)	8.7	7.9	0.05	19.4	17.5	<0.01
Sum of 4 Skinfold Thicknesses (mm)	41.6	38.6	0.01	80.1	77.2	0.08



# Results: Blood Pressure, 2010-2011

## Normal Weight

## Overweight/Obese

Blood Pressure	Pretest (Fall 2010)	Posttest (Spring 2011)	P value	Pretest (Fall 2010)	Posttest (Spring 2011)	P value
	Mean mm Hg	Mean mm Hg		Mean mm Hg	Mean mm Hg	
<b>Systolic</b>	110.7	110.2	0.55	119.2	116.5	<0.01
<b>Diastolic</b>	69.6	67.6	<0.01	72.0	69.5	<0.01
Blood Pressure	Pretest (Fall 2011)	Posttest (Spring 2012)	P value	Pretest (Fall 2011)	Posttest (Spring 2012)	P value
<b>Systolic</b>	107.2	108.3	0.10	113.7	112.8	0.33
<b>Diastolic</b>	67.2	66.9	0.65	69.1	68.0	0.13

# Results: Hypertension, 2010-2011

## Normal Weight

## Overweight/Obese

BP Status	Pretest (Fall 2010)	Posttest (Spring 2011)	Diff	P value	Pretest (Fall 2010)	Posttest (Spring 2011)	Diff	P value
	%	%			%	%		
Systolic HTN	22.2	17.4	-4.8	0.55	49.2	34.4	-14.7	0.04
Diastolic HTN	16.3	13.3	-3	0.04	15.9	10.1	-5.8	0.20
BP Status	Pretest (Fall 2011)	Posttest (Spring 2012)	Diff	P value	Pretest (Fall 2011)	Posttest (Spring 2012)	Diff	P value
Systolic HTN	7.4	9.3	1.9	0.48	29.2	21.5	-7.8	0.14
Diastolic HTN	7.8	4.4	-3.3	0.15	10.4	6.1	-4.3	0.20



# Results: Physical Fitness, 2010-2011

## Normal Weight

## Overweight/Obese

TEST	Pretest (Fall 2010)	Posttest (Spring 2011)	P value	Pretest (Fall 2010)	Posttest (Spring 2011)	P value
Sit Ups (#)	22.9	26.8	<0.001	23.6	26.8	0.001
Push Ups (#)	15.9	20.1	<0.001	14.8	19.6	<0.001
Pacer (laps)	12.9	14.2	0.01	12.1	12.5	0.46
Sit-and-Reach (cm)	26.2	26.9	0.008	25.0	25.4	0.21
400 meter run (sec)	231.9	191.4	<0.001	218.6	191.9	0.001

# Results: Physical Fitness, 2011-2012

## Normal Weight

## Overweight/Obese

TEST	Pretest (Fall 2011)	Posttest (Spring 2012)	P value	Pretest (Fall 2011)	Posttest (Spring 2012)	P value
Sit Ups (#)	21.1	24.3	0.12	18.1	20.6	0.17
Push Ups (#)	18.3	20.5	0.09	15.7	18.3	0.09
Pacer (laps)	13.3	15.7	0.01	10.8	12.5	0.04
Sit-and-Reach (cm)	27.8	26.7	0.04	26.4	25.7	0.26
400 meter run (sec)	175.7	179.3	0.45	217.1	213.7	0.57



# Results: Health and Wellness Knowledge, 2010-2011

Test Items/Variables	Baseline	10 Month	P	Baseline	10	P
	% Correct	% Correct		% Correct	Month	
	mean (SE)	mean (SE)		mean (SE)	%	
	Normal Weight (N=149)			Overweight/Obese (N=113)		
					Correct	
					mean	
					(SE)	
Being physically active is only for athletes	83.8 (5.5)	93.3 (2.9)	0.02	87.6 (4.8)	93.7 (2.8)	0.09
It is healthy to eat fruits/vegetables at every meal	75.8 (5.9)	92.8 (2.6)	0.001	65.6 (7.7)	87.3 (4.2)	<0.01
Fruits & vegetables are full of nutrients & vitamins	89.3 (3.8)	96.2 (1.7)	0.02	91.7 (3.4)	94.2 (2.6)	0.39
It is good to exercise an hour a day	80.8 (5.9)	91.2 (3.3)	0.02	83.9 (5.6)	91.2 (3.6)	0.10
Watch TV instead of exercise	77.9 (5.7)	90.3 (3.4)	0.01	77.1 (6.3)	91.8 (3.2)	<0.01
I should limit the amount of TV	66.6 (7.4)	87.5 (4.0)	<0.01	64.7 (8.1)	88.0 (4.2)	0.001
How does being physically active help your body	68.7 (6.1)	89.9 (3.1)	<0.01	72.9 (6.2)	89.4 (3.5)	<0.01
Identify the activity that is most physically active	90.4 (3.0)	97.7 (1.2)	0.01	92.4 (2.9)	94.5 (2.3)	0.47
Identify the bad drink	47.6 (7.7)	80.0 (5.3)	<0.001	64.5 (7.6)	80.5 (5.5)	0.02
Overall Composite (Sum of All Items)	6.9 (0.3)	8.3 (0.3)	<0.001	7.1 (0.3)	8.3 (0.3)	<0.001

# Results: Health and Wellness Knowledge, 2011-2012

Test Items/Variables <sup>b</sup>	Baseline	10 Month	P	Baseline	10 Month	P
	% Correct	% Correct		% Correct	% Correct	
	mean (SE)	mean (SE)		mean (SE)	mean (SE)	
	Normal Weight <sup>c</sup> (N=210)			Overweight/Obese <sup>d</sup> (N=139)		
Being physically active is only for athletes	84.6 (3.6)	90.2 (2.7)	0.10	85.5 (4.0)	90.8 (3.1)	0.22
It is healthy to eat fruits/vegetables at every meal	80.1 (4.5)	90.1 (2.9)	0.01	79.5 (5.2)	92.2 (2.9)	0.01
Fruits & vegetables are full of nutrients & vitamins	84.1 (4.7)	92.7 (2.7)	0.01	80.8 (5.9)	93.3 (2.9)	0.01
It is good to exercise an hour a day	80.8 (5.2)	87.3 (3.9)	0.10	85.3 (4.9)	87.7 (4.3)	0.62
Watch TV instead of exercise	82.1 (5.2)	85.4 (4.5)	0.40	77.1 (6.6)	89.6 (3.9)	0.02
I should limit the amount of TV	74.1 (4.9)	80.0 (4.2)	0.19	81.1 (4.7)	84.5 (4.1)	0.50
How does being physically active help your body	71.1 (6.0)	83.2 (4.3)	<0.01	68.2 (6.8)	80.6 (5.2)	0.04
Identify the activity that is most physically active	81.6 (4.4)	88.6 (3.2)	0.07	86.7 (4.1)	91.1 (3.2)	0.32
Identify the bad drink	67.0 (6.4)	81.4 (4.6)	<0.01	66.4 (7.0)	82.7 (4.8)	<0.01
Overall Composite	6.8 (0.1)	7.6 (0.1)	<0.01	7.0 (0.2)	7.9 (0.2)	<0.01



## **UM Study Shows Miami-Dade Parks Fit2Play Program Is Making Kids Healthier**

The University of Miami's conclusive analysis of the measurement-impact data revealed that participants:



1. Collectively maintained healthy weight and body mass index (BMI) throughout the school year



2. Lowered their blood pressure



3. Improved their physical health, fitness levels and knowledge about nutrition and healthy lifestyle behavior

**THE POWER OF PARKS TO CREATE HEALTHIER COMMUNITIES**

# Conclusions:

- Fit-2-Play is an effective childhood obesity prevention tool
  - normal weight children STAY normal weight
  - year 2 results show overweight children significantly decrease BMI
- Fit-2-Play is an effective tool in maintaining healthy blood pressure
  - The proportion of overweight children with both systolic and diastolic hypertension was reduced
  - normotensives significantly increased
- Fit-2-Play is an effective tool to significantly increase physical fitness levels
  - both normal weight and overweight groups became more fit
- Fit-2-Play significantly increases participant nutrition knowledge
  - both groups learned about proper eating and drinking habits





# Next Steps:

- Publish 2012-13 results
- Develop and expand the nutrition education curriculum to deliver a more comprehensive program, reaching a younger and older demographic with varying content
- Launch web-based program to enhance and standardized Fit2Play program delivery
- Incorporate additional Fit2Play program outcomes (increase in participation, scholastic improvement, increased parent engagement, screen time reduction, extracurricular activity increase, self-esteem improvement)





*Q & A*